ORIGINAL ARTICLE

Effectiveness of Self Instructional Module on Knowledge and Skills Regarding Use of Glasgow Coma Scale in Neurological Assessment of Patients among Nurses Working in Critical Care Units of KLE Dr. Prabhakar Kore Hospital and Medical Research Centre, Belgaum

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Abstract:

Background: The brain is the central unit that controls all the functions of our body. The brain cannot function all by its self without the neurons. The proper functioning of the brain and its relationship with the world is known as consciousness. The level of consciousness is the sensitive and reliable indicator of the patient's neurological status. The alteration in the consciousness helps to determine if there is any damage in the nervous system that can occur even without visible damage to the head. There are numerous tools used to determine level of consciousness. The most common tool used to determine level of consciousness is the Glasgow Coma Scale (GCS). It was used with ease and helped to standardize clinical observations of the patients with impaired consciousness. A proper neurological assessment using the Glasgow Coma Scale is the essential part of nursing care. It is very essential for the nurse to have knowledge and skills about neurological assessment and the Glasgow Coma Scale. Hence the present study to evaluate the effectiveness of Self Instructional Module (SIM) on knowledge and skill regarding Glasgow Coma Scale was undertaken. *Aim and Objectives:* 1] To assess the knowledge and skills regarding the use of Glasgow Coma Scale in neurological assessment of patients among the staff nurses. 2] To determine the effectiveness of the Self Instructional Module on knowledge and skills regarding the GCS in neurological assessment of patients. 3] To find association between the pre test knowledge and skills scores and demographic variables. 4] To find the correlation between the knowledge scores and the skills scores regarding the GCS in neurological assessment of patients. *Material and Methods:* The study was evaluative in nature. A purposive sampling technique was used for the study. A total of 55 staff nurses working in Critical Care Units of KLES Hospital and MRC, Belgaum were selected for the study. A structured questionnaire and an observational checklist was prepared with the expert guidance. Pilot study was conducted and tool was found to be feasible and reliable. Data collected was analyzed by using descriptive and inferential statistics. *Results:* The findings of the study revealed that during pre-test, 41(74.55%) of the staff nurses had average knowledge and 14(25.45%) had poor knowledge. After the administration of Self Instructional Module in post-test 38 (69.09%) of staff nurses had good knowledge and 17(30.91%) had average knowledge. The study also revealed that during the

pre test all the staff nurses 46(83.64%) had average skill. After the administration of the Self Instructional Module in post-test 35(63.64%) of staff nurses had average skill and 20(36.36%) had good skill. This proved that SIM is an effective method to increase the knowledge and skill of the staff nurses working in critical care units. Further computed paired 't' test value (40.8**)** revealed that there was significant gain in knowledge and skill among staff nurses working in critical care units after administration of SIM and probability value of $\div^2$ contingency table revealed that the knowledge scores and socio-demographic variables were dependent on gender and the skill scores were dependent on the total years of experience. Conclusion: SIM was useful in including the knowledge & skill in using glasgow coma scale in neurological assessment of patients by the nursing staff.

Key words: Staff Nurses; Self Instructional Module, Knowledge, Skills

Introduction:

The brain is the central unit that controls all the functions of our body and it cannot function all by its self without the neurons [1]. The proper functioning of the brain and its relationship with the world is known as consciousness. Consciousness is general awareness of oneself and the surrounding environment. Consciousness can only be descriptively approached by documentation of the observations made at that point in time [2]. The neurological assessment is a key component in the care of an unconscious patient [3]. The Glasgow Coma Scale (GCS) is the corner stone of the neurological assessment of patients used by both nursing and medical staff [4]. The GCS is a scaled assessment that measures the degree of consciousness under three distinct categories of neurological functioning, and each category is further subdivided and given a score [5]. The Glasgow Coma Scale is the best measure of the overall brain dysfunction caused by traumatic brain injuries [6].

Every year, millions of people succumb to traumatic brain injuries. Traumatic brain injuries (TBIs) are a leading cause of morbidity, mortality, disability and socioeconomic losses around the world. As per WHO estimates, nearly 12 lakh people have died in the road crashes in 2002 around the world. It is estimated that nearly 1.5 to 2 million persons are injured and 1 million succumb to death every year in India. Immediate trauma care is a neglected area in India [7].

In the state of Karnataka, there have been over 6,500 deaths on the roads in 2006 and nearly 50,000 injuries. Because of high levels of under reporting the true figures are likely to be much higher, particularly for the non-fatal crashes and less serious injuries [8].

When a patient is admitted in the critical care units, the staff nurses come in constant contact with the patient and they have to constantly observe and assess the patient and to educate the family members regarding the patient's condition and prognosis, but many staff nurses are not well versed and thorough about the neurological assessment using the GCS. According

to an explorative study conducted in Edinburgh on nursing students' understanding of the GCS, it has been observed that most respondents have not been confident in practical use of the GCS. However, they would want to improve their theoretical knowledge as well as their practical skills and the study has concluded that a short training course would be needed to make sure that students are able to use the GCS effectively while minimizing errors [9].

A proper neurological assessment using the GCS is an essential part of nursing care. Hence it is very essential for a nurse to have a knowledge and skill about neurological assessment and the GCS. Therefore the investigator has chosen this study to find out efficacy of SIM in improving the knowledge and skill regarding GCS of nursing staff thereby improving the care of the patients in the critical care units.

Material and Methods:

Pre test and post test assessment was conducted on 55 staff nurses working in Critical Care Units of KLES' Dr. Prabhakar Kore Hospital and Medical Research Center. The study was approved by the ethics committee of KLE University. The study protocol was explained to the staff nurses and their written consent was taken. The subjects were selected based on purposive sampling based on inclusion criteria. The pretest was conducted on 11th of February 2012 by administering a structured questionnaire to the subjects to obtain demographic data and knowledge about GCS. The skill was checked using the observational checklist. The Self Instructional Module was administered to the subjects after the pretest. On the 7th day the posttest was conducted for all the subjects using the same tools. The collected data was organized and analyzed based on the objectives by using descriptive and inferential statistics.

The contents of self instructional module were anatomy and physiology of nervous system, definition of GCS, brief history of GCS, Application of GCS and assessment of level of consciousness based on uses of GCS, elements of the GCS, procedure and scoring using the GCS.

Results:

Findings Related to Socio Demographic Variables: Majority of subjects 39(70.9%) belonged to age group 20-25 years. Among the 55 subjects 32(58.18%) were males and 23(41.82%) were females and 32(58.18%) had completed their diploma in nursing and 23(41.82%) had completed their degree in nursing, 34(61.81 %) subjects had zero to two years of experience, 44(80 %) subjects had zero to two years experience in critical care units and 20 (36.36%) were working in medical intensive care unit (Table 1).

Findings related to effectiveness of Self Instructional Module:

The mean pre test knowledge score was (12.84±4.24). Among the total samples (n=55), maximum number 41 (74.55 %) had average knowledge and 14(25.45%) had poor knowledge.

The mean post test scores stated maximum number 38 (69.09 %) had good knowledge and 17(30.91%) had average knowledge.

The mean pretest skill score was (7.64±2.79). Among the total samples (n=55), maximum number 46 (83.64%) had moderate skill and 8(14.54%) had inadequate and a minimal (1.82%) had adequate skill.

The mean post test skill score was (11.45±2.21). Among the total samples (n=55), maximum number 35 (63.64%) had moderate skill and 20 (36.36%)) had adequate skill. (Table. 2)

Paired.t. values of knowledge score of staff nurses

Paired.t. test results showed significant gain in knowledge ($p<0.05$) after the administration of self instructional module on Glasgow Coma Scale [tcalculated =40.8 than ttabulated=1.960].

Paired.t. values of skills score of staff nurses

Paired.t. test results showed significant gain in skill ($p<0.05$) after the administration of self instructional module on Glasgow Coma Scale [tcalculated =33.67 than ttabulated=1.960]. Therefore the .t. test results showed significant gain in knowledge and skill after the administration of self instructional module on Glasgow Coma Scale. (Table 4)

Findings related to correlation between pretest knowledge and pretest skill scores

The correlation coefficient between the pretest knowledge and pretest skills scores is 0.966 indicating a positive correlation.

The mean post test knowledge score was (25.78 ±2.39).

Findings related to the association between pre test knowledge and skill scores and the socio demographic variables:

The association between the knowledge scores and socio demographic variables was computed by using Chi square (χ^2) test. There was significant association between the pretest knowledge scores and gender (χ^2 - 7.32, $p<0.05$ level) The association between the skills scores and socio demographic variable was computed by Chi square (χ^2) test; there was a significant association between the pre test skill scores and years of experience ($\chi 2$ - 6.71, $p<0.05$ level)

Table 1- Frequency distribution of staff nurses working in critical care units according to socio-demographic data (n=55)

Sr. No.	Socio-demographic variables	Frequency	Percentage
1	**Age:**		
	20-25	39	70.9
	26-30	16	29.1
2	**Gender:**		
	Male	32	58.18
	Female	23	41.82
3	**Qualification:**		
	Diploma Nursing	32	58.18
	Degree Nursing	23	41.82
4	**Years of Experience:**		
	0-2	34	61.81
	3-5	16	29.09
	More than 6	5	09.10
5	**Years of Experience in Critical Care Unit:**		
	0-2	44	80
	3-5	9	16.36
	More than 6	2	3.64
6	**Area of work:**		
	Trauma	18	32.72
	NSICU	17	30.92
	MICU	20	36.36

Table 2.1- Mean, Standard Deviation of knowledge score of Staff nurses on Glasgow Coma Scale (n=55)

Area of analysis	Mean	S.D.
Pre-test	12.84	4.24
Post-test	25.78	2.39
Difference	11.56	3.26

Table 2.2-Mean, Standard Deviation of skills scores of staff nurses on Glasgow Coma Scale (n=55)

Area of analysis	Mean	S.D.
Pre-test (x)	7.64	2.79
Post-test (y)	11.45	2.21
Difference (y-x)	3.78	4.18

Table - 3.1: Frequency and percentage (%) distribution of knowledge scores of staff nurses on Glasgow Coma Scale (n=55)

Knowledge score	Pre-test		Post-test	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Good (26-32)	0	0	38	69.09
Average (8-25)	41	74.55	17	30.91
Poor (0-7)	14	25.45	0	0

Table 3.2 - Frequency and percentage (%) distribution of skill scores of staff nurses on Glasgow Coma Scale (n=55)

Skill Score	Pre-test		Post-test	
	Frequency (f)	Percentage (%)	Frequency (f)	Percentage (%)
Adequate (13-16)	1	1.82	20	36.36
Moderate (5-12)	46	83.64	35	63.64
Inadequate (0-4)	8	14.54	-	-

Discussion:

Findings related to socio-demographic variables:

The findings of the present study about age and sex of the study subject is smilar to the study of Bagi D [10]. Majority of study subjects have been male (58.18%) and in the age range of 20 to 25 years.

Findings related to self instructional module:

Findings of present study are smilar to earlier study by Bagi [10] and Sibbala [12].

The result indiacate marked difference in knowledge and skill after traning by SIM.

Conclusion:

Use of SIM is very effective in increasing the knowledge and skill.

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